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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,491	02/05/2002	Norikazu Nishiyama	791_183	7267
25191	7590	01/27/2005	EXAMINER	
BURR & BROWN			STEIN, STEPHEN J	
PO BOX 7068			ART UNIT	PAPER NUMBER
SYRACUSE, NY 13261-7068			1775	

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,491

Applicant(s)

NISHIYAMA ET AL.

Examiner

Stephen J Stein

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-11 and 14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-11 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. Claims 8-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhari, Karuna et al., *Electron Spin Resonance Investigation on the Location and Reducibility of Zirconium in Mesoporous Zr-MCM-41 Molecular Sieves*, Journal of Physical Chemistry B, Vol. 104, No. 47, November 2000 (Chaudhari et al.) in view of US 6,274,207 (Balkus Jr., et al.).

Chaudhari teaches a zirconium containing mesoporous MCM-41 molecular sieve (zirconium containing mesoporous silica), wherein the Zr element is in the form of Si-O-Zr and at a level of 2 molar percent (see abstract and page 11073). Chaudhari further teaches that the pore volume is from 27 to 31 angstroms (2.7 to 3.1 nm) (page 11068) and the pore volume ranges from 0.51 to 1.05 cc/g (See table 1 on page 11067). Chaudhari fails to teach or suggest that the zirconium containing mesoporous silica film is on a porous substrate.

Balkus Jr teaches that high quality molecular sieves made of MCM-41 thin films (mesoporous silica) may conventionally be deposited on a porous substrate (col. 1 and 2.).

Therefore, it would have been obvious to one of ordinary skill in the art at time of the invention to deposit the zirconium containing mesoporous silica disclosed by Chaudhari on to a porous substrate because the Balkus reference discloses that it is conventional do so for the same purpose (e.g. molecular sieve). With regard to the claimed alkaline [alkali] resistance, it is expected that the disclosed material would exhibit this property, since it is the same material as

Art Unit: 1775

that claimed by applicants. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977). With regard to the claimed process of manufacturing limitations recited in new claim 14, process limitations in product claims are generally not dispositive on patentability unless it is shown that the process limitations produce a materially different product. MPEP §2113.

Response to Arguments

3. With regard to the rejections under 35 USC 112 2nd paragraph, applicants' arguments have been deemed persuasive and the rejections have been withdrawn.
4. With regard to the rejections under 35 USC 103(a), applicants have amended independent claim 8 to recite that the mesoporous silica exhibits *alkaline resistance*. It is noted that applicant's specification refers to the mesoporous silica exhibiting *alkali resistance*. Further, dependent claim 10 also refers to the mesoporous silica having an *alkali resistance* (not alkaline resistance) index of larger than 10. For the purposes of examination, it is presumed that applicants are using these terms synonymously. Applicants agree that the prior art of record fails to disclose that the mesoporous silica exhibits alkaline resistance. Applicants further argue that they have discovered that Zr including mesoporous silica has good alkaline resistance properties

Art Unit: 1775

obtained when a Si source and a Zr source and a surfactant are initially mixed together as starting materials to form a synthesis gel. They further argue that the Chaudhari reference (prior art) discloses that the Si source and the surfactant are mixed together to form a synthesis gel mixture and then Zr source is subsequently added which then processed to form the silica materials.

Applicants' finally argue that the Chaudhari reference does not disclose that any examples of the Zr-MCM-41 silica has alkaline properties and that based on the Chaudhari processing method, skilled artisans would not understand that the Chaudhari Zr-MCM-41 does not necessarily exhibit alkaline resistance.

Applicants' arguments have been carefully considered, but not deemed persuasive.

Applicants' have made no showing that the Zr-MCM-41 mesoporous silica of the prior art would not have the claimed property of alkaline (alkali) resistance. Absent such a showing, it is expected that the disclosed Zr containing mesoporous silica would exhibit such alkaline resistance, since it is the same composition as claimed by applicants. It is well settled that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977). Further, regarding new claim 14, applicants have not shown that the process limitations in claim 14 produce a materially different product than that of the Chaudhari reference. Process limitations in product claims are

Art Unit: 1775

generally not dispositive on patentability unless it is shown that the process limitations produce a materially different product. See MPEP §2113. The rejections are maintained.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 572-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 571-272-1535. The official fax number is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 1775

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 22, 2005



Stephen J. Stein
Primary Examiner
Art Unit 1775